ETHEREUM
FOR BEGINNERS 2021

The ultimate Ethereum guide with insights on gas, smart contracts, Hardfork, Selinity, NFts, and DeFi

GEORGE BUTLER

VISIT…

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INTRODUCTION

Welcome to *Ethereum for Beginners 2021!*
It's fantastic the capabilities that the Ethereum blockchain has. While many projects have been built on the Ethereum blockchain, there remains a host of opportunities to explore. The developer and investor alike can look on and smile. The possibilities are endless.
When I was starting my cryptocurrency journey, I was amazed at how all the details were scattered. It took me a while to learn what I now know. I don't want anyone to have to go through such anymore. That is the reason for this book.

Among the thousands of cryptocurrencies, Ethereum holds, perhaps, the most considerable growth potential. The sheer number of projects built upon the Ethereum blockchain is enough proof that Ethereum is heading for the moon.

Many enthusiasts have heard about Ethereum but can't figure out what it is and tap into the cryptocurrency. I hope that this book will bridge the gap and serve as the missing link.

Ethereum for Beginners 2021 is the ultimate guide that you need. It will teach you everything you need to know about this revolutionary technology. It will ensure that you have all the knowledge necessary to get started and improve your expertise in the second most popular cryptocurrency in the world.
In this book, I have covered

- What Ethereum is and how it works
- What Smart Contracts are
- The difference between Bitcoin and Ethereum
- Describing Ethereum gas
- How to buy Ethereum
- How to store Ethereum
- Hardforks
- NFTS
- DeFi
- And lots more!!!

This book will answer all your questions about Ethereum.
Flip the page, and let’s begin! I hope you enjoy your read.

CHAPTER ONE

WHAT EXACTLY IS ETHEREUM?

Ethereum is a digital platform that builds on bitcoin's blockchain technology and expands its use to include a wide range of different applications. It's not to be confused with ether, the network's cryptocurrency, which is commonly referred to as ethereum.

The Ethereum platform was founded in 2015 by Vitalik Buterin, a Toronto-based programmer, with the goal of creating a platform for decentralized, collaborative applications. Ether (ETH) is a cryptocurrency that can be utilized in this software's transactions. Ether, like bitcoin, is part of a self-contained peer-to-peer financial system that is free of government regulation and intervention. And, like bitcoin, ether's value has skyrocketed in a short period of time.

In January 2016, the price of ether was around $1. By September 2017, the price had risen to almost $290, although it has remained volatile, with numerous intraday swings. While there are hundreds of cryptocurrencies, ether is one of just a few with a considerable market cap, which includes its two main competitors, bitcoin and bitcoin cash.

What is the nature of ether?

Ether, like other cryptocurrencies, relies on a shared digital ledger to keep track of all ether transactions. It is open to the public, entirely transparent, and extremely difficult to change retrospectively.

This is referred to as the blockchain, and it is formed through the mining process.

Miners are in charge of forming ‘blocks' out of clusters of ether transactions and cryptographically safeguarding them by solving difficult algorithms. These methods can then be made more or less challenging in order to keep block processing time relatively consistent - around one every 14 seconds.

New blocks are then added to the chain of previous blocks, and the miner earns a 'block reward,' or a specific number of ether tokens. This is presently set at 5 ether units, but it may be reduced if the cryptocurrency grows in popularity.

The miner groups together recent cryptocurrency transactions to form a 'block.'

The block is encrypted and linked to the existing blockchain.

The miner receives a block reward, which they can directly reinvest in the market.

What is the Ethereum protocol?

The Ethereum blockchain is quite similar to the bitcoin blockchain, but its programming language allows developers to design software that manages and automates certain outcomes for blockchain transactions. This program is referred to as a smart contract.

Whereas a typical contract defines the terms of a relationship, a smart contract ensures that those terms are met by encoding it in code. It is software that executes the agreement automatically as soon as predetermined conditions are met, avoiding the delay and expenditure associated with manually concluding a contract.

To offer an example, an Ethereum user could write a smart contract that would deliver a certain quantity of ether to a friend on a specific date. They would enter this code into the blockchain, and the ether would be immediately delivered to the other party after the contract was completed — that is, when the agreed-upon date arrived.

CHAPTER TWO

SMART CONTRACTS AND ETHEREUM

A smart contract is a computer protocol designed to digitally facilitate, verify, or enforce contract negotiation or performance. Smart contracts enable the execution of credible transactions without the involvement of third parties.

One of the best aspects of blockchain technology is that, because it is a decentralized system between all authorized parties, there is no need to pay intermediaries (Middlemen), saving you time and dispute. Of course, blockchains have flaws, but they are unquestionably faster, cheaper, and more secure than traditional systems, which is why banks and governments are adopting them.

Nick Szabo, a cryptographer and legal researcher, realized in 1994 that the decentralized ledger might be used for smart contracts, also known as self-executing contracts, blockchain contracts, or digital contracts. Contracts of this type might be transformed to computer code, stored and replicated on the system, and supervised by the blockchain's network of computers. This would also result in ledger feedback, such as money being transferred and the product or service being received.

What exactly are Smart Contracts?

Smart contracts allow you to exchange money, property, shares, or anything else of value in a transparent, conflict-free manner without the use of an intermediary.

The best approach to explain smart contracts is to compare them to vending machines. Typically, you would go to a lawyer or a notary public, pay them,

and wait for the document. Then, insert a bitcoin into the vending machine (i.e., ledger), and your escrow, driver's license, or whatever is deposited into your account. Furthermore, smart contracts not only describe the rules and penalties governing an agreement in the same manner that regular contracts do, but they also automatically enforce those rules and penalties.

How do smart contracts function?

In a smart contract approach, an asset or currency is transferred into a program, "and the program runs this code and at some point, it automatically validates a condition, and it automatically determines whether the asset should go to one person or back to the other person, or whether it should be immunized," explained Vitalik Buterin, the 22-year-old ethereum programmer, at a DC Blockchain Summit.

Meanwhile, the decentralized ledger stores and replicates the document, providing it with security and immutability.

Example

Assume you are interested in renting an apartment from me. You may achieve this using the blockchain and cryptocurrencies. You receive a receipt stored in our virtual contract; I provide you with the digital entrance key delivered to you by a given date. If the key does not arrive on time, the blockchain will provide a refund. If I send the key before the rental date, the function holds it and releases both the fee and the key to you and me when the date arrives. The system is based on the If-Then logic and is observed by hundreds of people so that you can expect flawless delivery. I'm confident I'll get paid if I give you the key. You will obtain the key if you send a specified number of bitcoins. Because all participants are simultaneously alerted, the document is immediately canceled after the time, and the code cannot be interfered with without any of us knowing.

Smart contracts can be used in various contexts, including financial derivatives, insurance premiums, breach contracts, property law, credit enforcement, financial services, legal processes, and crowdfunding

agreements.

Here's How Smart Contracts Can Help You

According to Jerry Cuomo, IBM's vice president of blockchain technology, smart contracts may be utilized across the board, from financial services to healthcare to insurance. Following are some examples:

Government

Insiders confirm that our voting method is complicated to rig, but smart contracts would alleviate these concerns by offering an infinitely more secure system. First, ledger-protected votes would have to be decrypted, which would take a lot of computational power. Because no one has so much processing power, God would be required to hack the system! Second, smart contracts have the potential to increase low voter turnout. Much of the inertia stems from a clumsy system that entails lining up, displaying your identity, and filling out forms. Volunteers may transmit voting online via smart contracts, and millennials will turn out in droves to vote for their Potus.

Management

Because of its precision, transparency, and automated system, the blockchain provides a single ledger as a source of confidence and reduces potential snarls in communication and workflow. Usually, business activities must endure a back-and-forth while awaiting approvals and resolving internal or external concerns. This is made more accessible by using a blockchain ledger. However, it also eliminates common discrepancies with independent processing and can lead to costly lawsuits and settlement delays.

A case study

The Depository Trust & Clearing Corp. (DTCC) employed a blockchain ledger to process more than $1.5 quadrillion in securities, totaling 345 million transactions, in 2015.

The Supply Chain

Smart contracts operate on the If-Then basis, so, in the words of Jeff Garzik,

"UPS may execute contracts that say, 'If I collect cash on delivery at this place in a growing, emerging market, then this other [product] will trigger a supplier generating a new item because the previous item was just delivered in that developing market." All too often, supply chains are impeded by paper-based systems, in which paperwork must be approved through many channels, increasing the risk of loss and fraud. The blockchain eliminates this by providing all stakeholders on the chain with a secure, accessible digital version and automating chores and payment.

A case study

Barclays Corporate Bank uses smart contracts to document a change of ownership and automatically transmit funds to other financial institutions upon arrival.

Automobile

There is no doubt that we are evolving from sluggish pre-human vertebrates to super-intelligent robots. Can you imagine a world where everything is mechanized? Google is making strides in this direction with smartphones, smart eyewear, and even smart cars. This is when smart contracts come in handy. One example is self-driving or self-parking automobiles, where smart contracts may activate a sort of "oracle" that could determine who was at fault in a crash, the sensor or the driver, among a plethora of other circumstances. Using smart contracts, an automobile insurance business might charge various premiums depending on where and under which clients drive their automobiles.

Real Estate

Smart contracts allow you to earn more money. Typically, if you wanted to rent out your flat to someone, you'd have to pay a middleman like Craigslist or a newspaper to advertise, and then you'd have to offer money to someone to confirm that the person paid rent and followed through. Your expenses will

be reduced as a result of the ledger. All you have to do is pay with bitcoin or ethereum and have your contract encoded on the ledger. Everyone notices and you achieve automatic fulfillment. Brokers, real estate brokers, hard money lenders, and everyone else involved in the real estate game stand to benefit.

Healthcare

Personal health records might be encoded and kept on the blockchain using a private key that only particular individuals would access. A similar technique might be used to ensure that research is conducted following HIPAA regulations (securely and confidentially). For example, surgery receipts might be maintained on a blockchain and automatically delivered to insurance providers as proof of delivery. The ledger could also be utilized for general healthcare management, such as drug supervision, regulatory compliance, testing findings, and healthcare supply management.

Smart Contracts are Fantastic!

Here's what smart contracts provide:

Autonomy: You are the one who makes the deal; you do not need to rely on a broker, lawyer, or other intermediaries to ratify it. In addition, because execution is managed automatically by the network rather than by one or more potentially biased humans who may blunder, the risk of manipulation by a third party is eliminated.

Trust: Your documents are encrypted and stored on a distributed ledger. Someone cannot claim to have lost their mind.

Backup: Consider what would happen if your bank lost your savings account. On the blockchain, every single one of your buddies has your back. Your documents are replicated numerous times.

Security: Cryptography, or website encryption, protects your papers safe. There is no tampering. In reality, cracking the system and infiltrating it would require an exceptionally gifted hacker.

Speed: Manually processing documents would typically take a significant amount of time and paperwork. Smart contracts employ software code to

automate functions, reducing the time required to complete various business procedures.

Savings: Smart contracts save you money by eliminating the need for a middleman. You might have to pay a notary to witness your transaction, for example.

Accuracy: Automated contracts are not only faster and less expensive, but they also avoid the errors that might occur when filling out a plethora of forms by hand.

Now, on to the challenges.

Smart contracts are not without flaws. What if the code has some bugs? Or, more specifically, how should governments regulate such contracts? Alternatively, how would governments tax smart contract transactions? As an example, recall my renting situation?

What if I transmit the wrong code, or, as lawyer Bill Marino points out if I give the correct code, but my apartment is condemned (i.e., taken over for public use without my agreement) before the rental date arrives? Of course, I could revoke the contract in court if it were a standard contract, but the blockchain is a different story. Whatever happens, the contract will be fulfilled.

The list of difficulties is endless. Experts are working to resolve them, yet these crucial challenges deter potential users.

And now for the Future of Smart Contracts.

Entangling these challenges is an essential part of the future of smart contracts. Lawyers at Cornell Tech, who believe that smart contracts will become commonplace, for example, have dedicated themselves to examining these risks.

When it comes to smart contracts, we're entering a sci-fi movie. According to the IT resource center Search Compliance, smart contracts may impact changes in specific industries, such as law. In that event, lawyers will shift from creating traditional contracts to creating standardized smart contract templates, similar to the conventional standardized contracts available on LegalZoom. Smart contracts may also be used by other businesses, such as

merchant acquirers, credit companies, and accountants, for duties such as real-time audits and risk assessments. According to the Blockchain Technologies website, smart contracts will merge into paper and digital material, with contracts validated by blockchain and substantiated by physical copy.

CHAPTER THREE

LET'S SEE HOW BITCOIN AND ETHEREUM DIFFER?

After bitcoin, Ether (ETH), the cryptocurrency of the Ethereum network, is undoubtedly the second most popular digital token. Indeed, being the second-largest cryptocurrency by market capitalization, comparisons between Ether and BTC are unavoidable.

In many ways, Ether and bitcoin are similar: both are digital currencies that can be traded on internet exchanges and held in various types of cryptocurrency wallets. Furthermore, these tokens are decentralized, which means they are neither issued nor governed by a central bank or other government entity. In addition, both make use of blockchain, a distributed ledger technology. However, there are some critical differences between the two most prominent cryptocurrencies in terms of market capitalization. We'll look at the similarities and differences between bitcoin and Ether in more detail below.

Bitcoin heralded the birth of an entirely new type of digital currency that functions independently of any government or organization.
People gradually realized that Bitcoin's fundamental technology, the blockchain, might be used for other purposes.
Ethereum advocated using blockchain technology to run a decentralized payment network and store computer code that may be used to power tamper-proof decentralized financial contracts and apps.
Ethereum applications and contracts are fueled by Ether, the money of the Ethereum network.
Although Ether was designed to complement rather than compete with bitcoin, it has emerged as a competitor on cryptocurrency exchanges.

Bitcoin Fundamentals
Bitcoin was first introduced in January of 2009. It introduced a revolutionary concept outlined in a white paper by the enigmatic Satoshi Nakamoto—bitcoin offers the promise of an online currency that is secure without the intervention of a central authority, unlike government-issued currencies.

There are no actual bitcoins; instead, there are balances connected with a cryptographically secured public ledger. Although bitcoin was not the first attempt at an online currency of this type, it was the most successful in its early endeavors. It has become known as a forerunner in some way to nearly other cryptocurrencies established over the last decade. 1

The concept of a virtual, decentralized currency has gained traction among regulators and political entities throughout the years. Even though it is neither a technically recognized mode of payment nor a store of value, bitcoin has carved out a niche for itself and coexists with the financial system despite being routinely analyzed and discussed.

Bitcoin's market value accounted for about 87 percent of the total cryptocurrency market at the start of the cryptocurrency boom in 2017.

Ethereum Fundamentals

Blockchain technology is being utilized to develop applications that go beyond simply allowing digital currencies. For example, Ethereum, launched in July 2015, is the largest and most well-established open-ended decentralized software platform.

Ethereum enables the development and deployment of smart contracts and decentralized applications (dapps) with no downtime, fraud, control, or intervention from a third party. Ethereum includes its programming language that runs on a blockchain, allowing developers to create and execute distributed applications.

Ethereum's potential applications are diverse, and they are fueled by its native cryptographic token, Ether (commonly abbreviated as ETH). Ethereum had a presale for Ether in 2014, which was met with resounding success. Developers use Ether to construct and operate apps on the Ethereum network, much like fuel is used to run instructions on the platform.

Ether is primarily used for two purposes: it is traded as a digital currency on exchanges like other cryptocurrencies. It is utilized to operate apps on the Ethereum network.

Important distinctions

While both the Bitcoin and Ethereum networks are based on the distributed ledger and cryptography principles, they differ in many respects on a technical level. Transactions on the Ethereum network, for example, may contain executable code, whereas data attached to Bitcoin network transactions are typically merely for maintaining notes. Other differences include block time (an ether transaction is confirmed in seconds, but a bitcoin transaction takes minutes) and the algorithms they use (Ethereum uses ethash while Bitcoin uses SHA-256).

More crucially, the Bitcoin and Ethereum networks are not the same in terms of their overall goals. While bitcoin was designed as an alternative to national currencies and so seeks to be a means of exchange and a store of value, Ethereum was designed as a platform to enable immutable, programmatic contracts and applications through its currency.

BTC and ETH are both digital currencies, but the primary function of Ether is to facilitate and monetize the operation of the Ethereum smart contract and decentralized application (dapp) platform.

Ethereum is another use-case for a blockchain that favors the Bitcoin network. However, it should not be considered a competitor to Bitcoin. However, Ether's prominence has forced it to compete with all cryptocurrencies, particularly in the eyes of traders. Since its inception in mid-2015, Ether has lagged behind bitcoin in market cap rankings among the top cryptocurrencies. Having said that, it's crucial to remember that the Ether ecosystem is far smaller than bitcoin's. As of January 2020, Ether's market worth was just under $16 billion, while bitcoin's was nearly ten times larger, at more than $147 billion.

CHAPTER FOUR

UNDERSTANDING ETHEREUM GAS

The charge for sending transactions on the Ethereum network is known as gas. If you send ether tokens, transfer any other ERC-20 compatible coin, or run a smart contract on the network, you should expect to pay a small transaction fee.

Understanding how Ethereum gas costs operate is critical if you are interested in cryptocurrencies. This chapter will explain how Ethereum gas works, how to estimate your gas fees, and how to work to reduce your expenses when transacting on the Ethereum network.

Gas Definition

According to the Ethereum development team, gas is the "fuel" that allows Ethereum to function, similar to how you would put gas in a regular gas-powered car or truck to drive. But, unlike topping up your vehicle at the pump, determining gas pricing and who gets paid involves a lot of complex math and computer labor.

Countless machines are complex at work behind the scenes to keep the Ethereum network working. These power-hungry "miners" monitor every previous and current transaction on the network. In addition, those who purchase and sell on the network must pay a charge to help pay for the electricity and computing costs. This is where the gas enters the picture.

How Does Gas Work?

Ethereum gas is based on a supply and demand basis. Gas prices rise when the network is overcrowded, and miners are unable to keep up. Prices fall when the network is experiencing a slowdown due to excess mining capacity. Gas fees are commonly measured in "gwei," and they change in tandem with the price of the popular ether cryptocurrency (ETH). 0.000000001 ETH is equal to one gwei.

Prices not only grow and fall in response to market demand, but you may also

choose to be patient with your transaction in exchange for a discount or spend more petrol to go to the front of the line. These fees are not limited to the ether token. Other ERC-20 currencies run on the Ethereum network as well and have similar gas fees.

The Ethereum network is being upgraded to version 2.0. This is done to allow for faster transactions at cheaper gas rates.

The maximum quantity of gas you are willing to spend on a transaction is known as the gas limit. The gas limit for ordinary ETH transactions is typically 21,000 units of gas. However, complicated transactions incorporating smart contracts may necessitate a larger gas limit since verification requires more processing resources.

For instance, if you set a gas limit of 50,000 units for an ETH transfer that only requires 21,000 units, you will receive the remaining 29,000 units. On the other hand, if you set the gas limit too low, your gas units will be expended, but the verification task will be left unfinished.

The investors control the price of gas and the gas limits, which determine the overall transaction costs.

Gideon, for example, wishes to send 1ETH to Jane. If the gas limit is set at 21,000 units and the gas price is set at 300gwei, the total transaction fee will be:

Total fee = gas limit x gas price = 21,000 gwei x 300 gwei = 6,300,000 gwei x 0.0063ETH

Gideon's wallet will be depleted of 1.0036ETH, with 1ETH going to Jane and 0.0036ETH going to the miner.

Is Gas Required?

Gas fees must be paid while transacting on the Ethereum network. This is how gas was intended to work. You do not, however, need to purchase gas or pay in advance. Instead, the cost of gas is added to your purchase.

Even if they weren't aware of it, all Ethereum and other ERC-20 currency participants have consumed gas.

Remember that gas is distinct from any costs levied by your favorite cryptocurrency exchange, such as Coinbase.

Gas Alternatives

If you don't want to pay gas fees, you'll have to locate another cryptocurrency. However, you should expect to pay a fee for any cryptocurrency transaction. That is how blockchains work—and how miners are compensated for the time and effort they expend to accomplish your trade.

Consider an altcoin such as Stellar Lumens, Nano, Dash, or Iota if you want to save money on cryptocurrency costs.

Gas Advantages and Disadvantages

- There is no requirement to make a prior purchase.
- Many cryptocurrencies are supported.

Cons

- It can be costly.

Explained Advantages

Simple to use: Because gas is integrated into the network, you don't need to perform any arithmetic or pre-planning unless you want to work to reduce your transaction fees.

There is no need to make a prior purchase: To transact, you do not need to keep a gas supply on hand. Instead, it is automatically debited from your associated Ethereum wallet.

Many cryptocurrencies are supported: Gas is compatible with a wide range of cryptocurrencies, including Ethereum.

Explained Disadvantages

It can be costly: If you need a quick transaction or wish to send a trade during a busy period, the prices can be very high. Before you click the transmit button, you can use the handy ETHGasStation website to figure out how much you'll pay.

What Does the Price of Gas Mean for Individual Investors?
Transactions on the Ethereum network necessitate the payment of gas fees. This is the incentive you provide the network miners to choose your transaction to verify above other transactions.

If you set your transaction gas price too low compared to what other transactions are offering, your transaction may become "stuck" or remain pending. They will stay this way until gas prices fall and a miner finds your transaction valuable enough to process. 2

Gas should be factored into the expenses that investors expect to bear for transactions such as transferring tokens or purchasing NFTs on the network.

Investors should be especially wary of high gas fees on transactions, which could quadruple their costs.

Essential Takeaways
Gas costs are required for Ether and many other currency and smart contracts that run on the Ethereum network.
Gas prices fluctuate according to market demand and transaction type.
With the release of Ethereum 2.0, gas prices are projected to decline.
If your gas offer is too low, your transaction may become stopped or remain pending.

CHAPTER FIVE

HOW TO BUY ETHEREUM

This chapter will walk you through all of the best ways to buy Ethereum.

How to Purchase Ethereum
Before we get into the technicalities, let's go over the stages involved in purchasing Ethereum.

Following that, we will discuss specific sites to utilize depending on how you want to purchase ETH.

1. Select a Payment Method
This is a fundamental step.

You must decide how you want to purchase Ethereum.

ETH can be purchased in a variety of ways, the most common of which are as follows:

- Debit or credit cards
- Wire Transfers or Bank Transfers
- Cash in Bitcoin or another cryptocurrency

2. Select a Platform
Once you've decided on a payment option, you'll need to discover a platform that accepts that payment method.

There are numerous sites for purchasing Ethereum. However, the most user-friendly are exchanges and brokers such as Coinbase or Coinmama.

3. Register for an Account
After you've decided on a platform, you'll need to set up an account.

Signing up for Coinbase is as straightforward as creating an Amazon account!

The process of making an account differs slightly between platforms, but in general, it will include the following steps:

- Setting a Username and Password
- Using Two-Factor Authentication to safeguard it
- Going through a "Know Your Customer" process to prove your identity

There is sometimes a waiting period before you may buy

4. Make a deposit
It's time to deposit money now that your account is set up on your preferred site.

This setting is usually found in the platform's "Deposit" or "Buy/Sell" section.

5. Purchase your Ethereum
With your funds in hand, it's time to do what you came here to do: buy Ethereum!

Platforms that are the best for each payment method

Purchase Ethereum Using a Bank Account
There are numerous ways to purchase Ether with a bank account — and these usually have the lowest fees.

Coinmama
Coinmama is a trustworthy Ethereum broker that has been in business since 2014. Customers from practically every country can buy Ether with a credit or debit card. Among all credit card brokers, Coinmama has some of the most extensive credit card purchasing limits.

The organization provides good customer service and responds quickly.

Coinmama accepts bitcoin and litecoin as well.

PROS

- One of the quickest ways to purchase Ether with a credit card in most countries
- Trusted broker with over four years of experience Excellent customer service

CONS

- Fees are slightly higher than Coinbase, at roughly 6%.
- Using a credit card to make a purchase is not private.

Ethereum can be purchased with Bitcoin.

Almost any cryptocurrency exchange accepts Bitcoin for the purchase of Ethereum. This is because most global Ethereum trading volume occurs in the ETH/BTC pair rather than the ETH/USD pair.

Coinbase Pro

If this is the case, you will not need to establish a new account. You can immediately begin trading your bitcoins for ETH. Coinbase Pro has some of the most significant volumes for US consumers and is a handy option to convert your BTC to ETH, especially if you already purchased Bitcoin through Coinbase Pro or Coinbase.

To utilize Coinbase Pro, you must first sign up for a Coinbase account.

Coinbase Pro saw a sudden fall of Ethereum a while ago. However, Coinbase compensated everyone for any losses.

PayPal

Paypal has now made it possible to buy Ethereum directly from the site.
However, there are some significant restrictions on Ethereum purchases with Paypal. You cannot withdraw Ethereum to your wallet, nor can you transmit it to other Paypal customers. It is primarily a means of speculating on the price of Ethereum. You are only able to sell it back to Paypal.

Unless you live in the United States, you can now use eToro to buy Ethereum

and hold the keys if you wish to buy it using Paypal but be able to withdraw it.

If you do not live in the United States, follow these steps to buy Ethereum using Paypal on eToro (the same steps apply to Neteller and Skrill).

- Make an account for yourself.
- On the main dashboard, click "deposit funds,"
- Select your preferred payment method and input the amount you want to deposit.
- Continue by clicking the Continue button.
- You will be taken to Paypal to log in (the same if you select Neteller or Skrill) - log in to your account.
- login to PayPal
- Examine the transaction.
- Click the "Pay" button.

Your cash should appear in your account within a few minutes, at which point you can proceed to purchase Ethereum.

If you live in the United States, the only option to buy Ethereum with PayPal is to purchase Bitcoin with PayPal and then use the Bitcoins to purchase Ethereum. On Local Bitcoins, you may easily buy Bitcoin with Paypal. Once you have Bitcoin, you may convert it for Ethereum via an exchange such as Coinbase Pro.

Purchase Ethereum with Cash

Localcryptos.com is the best place to buy Ethereum with cash. It is similar to localbitcoins.com. However, it now accepts Litecoin and Ethereum sales.

All you have to do is tell LocalCryptos that you are seeking Ethereum, your location, and how you want to pay (in this case, cash).

If you want to buy Ethereum with cash, Localcryptos.com is a beautiful alternative to Localbitcoins.

Other Ways to Purchase Ethereum

Ethereum Decentralized Exchanges
If you only want to exchange currencies and ERC20 tokens, decentralized Ethereum exchanges are probably your best bet.

You can transfer tokens without storing your coins on an exchange, eliminating the possibility of being hacked or losing your funds in any other way.

Be wary of phony "decentralized" exchanges that are not, in fact, decentralized.

Below, we've identified some of the top decentralized ETH exchangers.

- **Uniswap**

Uniswap was one of the market's fastest-growing and most popular DEXs in 2020.

Users on Uniswap can trade between numerous trading pairs using Uniswap's smart contracts without submitting their coins to a centralized exchange. They are instead deposited into the smart contract, which handles the trades.

Trading fees on Uniswap can be rather expensive. However, this encourages more users to deposit coins into the exchange's liquidity pools, reducing costs.

What exactly are liquidity pools?
To address the liquidity issue that many decentralized exchanges face, Uniswap built liquidity pools where users can deposit coins from both sides of a trading pair and earn fees in exchange for the service. For example, if I hold ETH and BAT, I can deposit an equal amount of each into the ETH/BAT liquidity pool, making further trades between ETH and BAT easier to complete.

It is worth noting that Uniswap has had issues with stolen currencies in some of the smart contracts, which were made possible by code flaws during the contracts' construction. This is unfortunately quite prevalent in ETH and

smart contracts in general, so users should be cautious.

- **ForkDelta**

The most prominent decentralized Ethereum exchange is ForkDelta. It enables you to exchange ETH for different ERC20 tokens. So, you can't buy ETH for the first time, but it's a convenient way to convert them for ETH if you already hold any tokens.

It should be noted that ForkDelta is a fork of the EtherDelta exchange. It employs the same code. However, because many users were having problems with Etherdelta, someone forked the code and created a new exchange.

- **ERC dEX**

ERC dEX is a new Ethereum decentralized exchange. It has a fantastic user interface and makes switching tokens in an untrustworthy manner quite simple.

ERC dEX also works well from your phone, which makes trading more convenient. It charges 0.1 percent for the creator and 0.2 percent for the taker.

IDEX
IDEX is new. It is now generating roughly $8 million in daily volume, but it has currencies that are not available anywhere else. However, it has a reasonable volume for several lesser-known tokens.

Take out your Ethereum.
You should now have Ethereum in your platform account.

Congratulations on completing your quest!

CHAPTER SIX

ETHEREUM WALLETS: MOBILE, WEB, DESKTOP, AND HARDWARE

Before you can trade Ether, you must first have a place to keep it. That location is known as a wallet in the cryptocurrency world. It is essentially a piece of software that allows you to store your funds, quickly execute transactions, and check your balance whenever necessary.

It is important to note that Ethereum wallets do not function in the same way traditional physical wallets do. Ether is not kept in your wallet, or anywhere else for that matter. Ether, like all other cryptocurrencies, does not exist in any physical form. All that exists are Blockchain records, and your wallet will only interface with the Blockchain to allow transactions.

Wallets contain public addresses, which are strings of case-sensitive characters and numbers produced at random. If someone wants to send you any Ether, they will send it to this address, which is also known as a "public key," transferring ownership of the coins.

Your 'private key,' a password that you will need to sign off on transactions and unlock coins shared with you, is saved in your wallet. It goes without saying that your private key must be kept hidden if you want to avoid Ether theft.

The public and private keys are paired, meaning that the two strings of numbers and letters must match you to complete any transaction.

How to Select a Wallet

Your personal Ethereum wallet or a third-party Ethereum wallet?
The simplest way to store your Ether is in a third-party wallet, such as one supplied by an exchange. Of course, you have simple access to your assets in this manner, and maintaining your tokens on the exchange would likely speed up the trading process. However, you would essentially grant the exchange

complete control over your funds by using this method, as the third party will be storing your private keys. Furthermore, there are numerous instances in bitcoin history of exchanges being hacked and their consumers' assets being taken.

The Ethereum platform allows you to construct a personal wallet for yourself, with various options available. This way, you and only you will have access to the private key and, as a result, your funds.

Whether or not to use a full node

You can have direct access to the Ethereum Blockchain by running a full node. If you don't have one, you'll need to connect to another node to receive all of the required information and authenticate your transactions.

To use a full node wallet, you must first download the whole Ethereum Blockchain. Essentially, this converts your computer into a node. This entity supports the entire network by updating the Blockchain by reaching an agreement with other nodes on the authenticity of transactions. Because the Blockchain is many gigabytes in size and constantly increasing, this is only possible with a desktop wallet.

Wallet, hot or cold?

Ethereum wallets are classified into two types: hot and cold. A hot wallet keeps your keys online, making them available from almost anywhere in the globe as long as you have Internet connectivity. However, they are not the best alternative because they can be hacked and your funds stolen. On the other hand, Cold wallets keep your keys offline and only connect to the internet when you want them to. This increases their security and makes them less vulnerable to hacker attacks.

How to Design Your Own

Making your wallet is simple, mainly because the Ethereum platform offers an official wallet service called MyEtherWallet. Here's how to do it.

When you first visit the website, you will be met with various safety warnings. Take your time reading through them because they will help you

understand how the system works and what you should and should not do to preserve your assets.

When you're through reading, you'll have an opportunity to create a password and create a new wallet. After you've established a strong enough password, you'll be able to download your keystore file. In the world of cryptocurrency trading, you can never be too careful. Thus it is recommended that you do so and keep it in a secure location.

The following step is critical:

1. Save your private key.
2. Back it up, remember it, write it down on paper, and store it in a safe deposit box.
3. Do everything it takes to ensure you don't lose it and that no one else gets their hands on it.

Then, to unlock your wallet, copy and paste your private key or upload your keystore file. There are various additional ways to open it, but these are the best for first-time users.

You're all set now. The next time you want to access your wallet, you must re-authorize yourself on the website. There, you will be able to see your wallet's public address as well as its balance.

The preceding advice focuses on setting up the most straightforward and possibly most extensively used Ether wallet. There are other more types of wallets available, each with a somewhat different set-up process.

Paper Wallet

An Ethereum paper wallet is possibly the safest way to store your Ether. It's simply a sheet of paper with a code printed on it. The main advantage is that it is not connected to the internet and does not need to be saved on your computer. You can carry that piece of paper with you at all times. It could be in your safe deposit box or buried in your backyard. It protects your funds against hacker attacks and most types of physical theft (depending on how well you hide it).

Bitcoin ATM and paper wallet
To build a paper wallet, create a new wallet on MyEtherWallet, download the keystore file, and click the 'print' button. Your public and private keys, and QR-codes to scan, will be printed on a piece of paper by your printer.

Alternatively, for increased security, use alternative online generators and disconnect from the internet before establishing a new wallet address. This is a precautionary measure in case the website transmits wallet information to a hacker.

Mobile Wallets
Mobile wallets are often referred to as 'light' clients because they do not require you to download the complete Blockchain to function. Instead, they rely on miners or nodes to transmit precise information about the network's present condition. These wallets are ideal for use on the go, allowing you to access your Ether at any time as long as you have a cellular connection. These clients, however, are easy to exploit since they are 'light.'
Jaxx is the most popular and well-reviewed Ethereum-compatible mobile wallet at the time of writing. It is accessible for desktops running Windows, macOS, Linux, and cellphones running iOS or Android. The wallet's most essential feature is that the private keys never leave the device. There's no need to sign up or give any personal information.

Coinomi is another well-reviewed choice; it stores your keys on your device and supports 18 different coins and 214 tokens. Furthermore, it enables immediate cryptocurrency conversion. It is currently only accessible for Android, with an iOS client on the way shortly.

Lumi Wallet is a rapidly expanding mobile app wallet that places a premium on anonymity, multicurrency support, and a user-friendly interface. Anonymity is provided through personal encryption, which means that all private information is only stored on your device. It accepts BTC, ETH, EOS, and over 1,000 ERC-20 tokens. It is also possible to buy and exchange cryptocurrency directly in-wallet. The wallet is available for both Android and iOS devices.

Atomic is a popular multicurrency custody-free Ethereum wallet with a user-friendly interface that supports over 500 other coins and tokens. Atomic wallet is available for both Android and iOS devices. In a user-friendly interface protected by a mnemonic seed, you can secure, manage, exchange, and buy ETH. Private keys are encrypted on your device and are only accessible to you.

Wallets for desktops

Desktop wallets are applications that run on your computer or laptop. You have the option of downloading a full client that includes the entire Ethereum Blockchain or using a light client. While the latter option is more straightforward, the former provides additional security because it does not rely on miners or nodes to send them accurate information; instead, transactions are validated by themselves.

Desktop wallets are simple to set up and use and convenient and secure because they can only be used on the computer where they were downloaded. They are, however, linked to the internet, so you must ensure that your computer has not been hacked or infected with malware. Furthermore, if your computer is stolen, you run a significant risk of losing your funds.

The following are some of the best desktop wallets available right now:

Exodus: a simple multicurrency wallet with a user-friendly interface that saves your keys on your computer. It incorporates ShapeShift, allowing you to exchange cryptocurrencies instantly and without hassle. On the other hand, Exodus is not entirely open-source, which means that some parts of its code cannot be examined and reviewed by the community.

MetaMask: A Google Chrome extension that saves your keys on the

machine itself, effectively turning it into a desktop wallet. It is effortless to use and can be used to store, send, and receive Ether. Furthermore, it enables the use of other decentralized apps within it.

Mist: an official Ethereum wallet, so you don't have to worry about security when using it. It's similar to Exodus but a little more challenging to use. ShapeShift is also built into it.

Atomic: a custody-free wallet for Mac, Windows, and Linux. Your device's keys are encrypted and stored on it. Atomic supports over 500 additional coins and tokens in a user-friendly interface. Atomic also offers an instant exchange service and a Buy crypto option.

Web wallets

Web wallets, also known as online wallets, use cloud storage and can be accessed from any location. Furthermore, they are generally much faster than other types of wallets. However, because your keys are stored online and often on a third-party server, they are incredibly vulnerable to cyber-attacks, malicious malware, phishing scams, and hackers. Furthermore, your wallet isn't necessary because a company provides it, and the security of your funds is entirely out of your hands.

MyEtherWallet is similar to a web wallet, but it is more secure because it is entirely decentralized and stores your keys on your device.

Lumi Wallet is an excellent example of a mobile wallet's extended web interface. It has the same functionality as the app in that you can transfer, exchange, and buy all of the cryptocurrencies available. It's also as secure as a mobile wallet because all private keys are kept on the user's side.

The majority of other Ethereum web wallets are linked to and provided by exchanges.

Hardware wallets

Hardware wallets are the ultimate in cryptocurrency cold storage. They are similar to standard portable hard disks, but they are designed specifically for use with cryptocurrencies. They can be plugged into any computer to complete a transaction, and they can generate keys both offline and on the go.

Because hardware wallets are not connected to the internet, they protect your funds from cyber-attacks and hacking. Most of them include backup options to ensure that you don't lose your Ether, and they can be further secured with two-factor authentication and a PIN password. Most modern hardware wallets also include a screen that allows you to sign for transactions directly on the device.

They do, of course, come at a cost. They will undoubtedly cost you more than a software wallet, but they will be well worth the money, especially if you store a large amount of Ether. Furthermore, because they were designed with a specific purpose in mind, they were not mass-produced and may be challenging to locate.

Custodial Wallets

Custodial wallets are third-party services that offer digital asset storage and protection. Custodial Ethereum Wallet by Freewallet, for example, keeps private keys on their side and stores customer funds in cold storage. Customers can always regain access to their accounts because the wallet provider backs up such wallets on its servers. If you forget your password or misplace your phone, you can always restore your Ether from another device.

In other ways, custodial wallets are identical to other mobile and desktop cryptocurrency wallets and offer the same functions. Custodial wallets may be suitable for you if you don't mind handing over control and protection of your funds to a company in exchange for convenience and ease of access.

CHAPTER SEVEN

WHAT EXACTLY IS A HARD FORK?

In blockchain technology, a hard fork (or hardfork) is a radical change to a network's protocol that makes previously invalid blocks and transactions valid, or vice versa. A hard fork necessitates that all nodes or users upgrade to the most recent version of the protocol software.

Forks can be initiated by developers or members of a cryptocurrency community who are dissatisfied with the functionality provided by existing blockchain implementations. They may also emerge as a means to crowdfund new technology projects or cryptocurrency offerings.

A hard fork is a radical change to a blockchain network's protocol that results in two branches, one that follows the previous protocol and one that follows the new version.
Holders of tokens in the original blockchain will be granted tokens in the new fork, but miners must choose which blockchain to continue verifying in a hard fork.

A hard fork can happen in any blockchain, not just Bitcoin (where hard forks have created Bitcoin Cash and Bitcoin SV, among several others, for example).

The Meaning of a Hard Fork
A hard fork occurs when nodes of the most recent version of a blockchain no longer accept the previous version(s), resulting in a permanent divergence from the earlier version of the blockchain.

Adding a new rule to the code essentially causes a fork in the blockchain, with one path following the new, upgraded blockchain and continuing along the old path. Generally, those on the old chain will realize after a short time that their version of the blockchain is outdated or irrelevant and will quickly upgrade to the latest version.

How Forks Work

A blockchain fork can occur on any crypto-technology platform, not just Bitcoin. This is because blockchains and cryptocurrency operate essentially the same way regardless of which crypto platform they are on. Blockchain blocks can be thought of as cryptographic keys that move memory. Because miners in a blockchain set the rules that move memory in the network, the new rules are understood by these miners.

However, all miners must agree on the new rules and constitute a valid block in the chain. So, if you want to change the rules, you must "fork it"—like a fork in the road—to indicate that there has been a change or deviation from the protocol. After that, the developers can update all of the software to reflect the new rules.

Various digital currencies with names similar to bitcoin have emerged due to this forking process, including bitcoin cash, bitcoin gold, and others. It can be difficult for a novice cryptocurrency investor to tell the difference between these cryptocurrencies and map the various forks onto a timeline.

What Are the Benefits of a Hard Fork?

Developers may implement a hard fork for various reasons, including correcting critical security flaws discovered in older versions of the software, adding new functionality, or reversing transactions. For example, the Ethereum blockchain created a hard fork to reverse the Decentralized Autonomous Organization (DAO) hack.

Following the hack, the Ethereum community almost unanimously voted in favor of a hard fork to roll back transactions that an anonymous hacker siphoned off tens of millions of dollars worth of digital currency. The hard fork also aided DAO token holders in receiving their ether (ETH) funds back. 1

The hard fork proposal did not completely unravel the network's transaction history. Instead, it transferred the DAO funds to a newly created smart contract with the sole purpose of allowing the original owners to withdraw their funds.

DAO token holders could withdraw ETH at a rate of about 1 ETH for every 100 DAO. The DAO curators withdrawn and distributed any remaining tokens and ether due to the hard fork to provide "failsafe protection" for the organization.

Soft Forks vs. Hard Forks

Hard forks and soft forks are essentially the same in that when the existing code of a cryptocurrency platform is changed; an old version remains on the network while the new version is created.

In the case of a hard fork, both the old and new blockchains coexist, which means that the software must be updated to comply with the new rules. As users adopt the update, only one blockchain will remain valid after a soft fork. Both forks cause a split, but a hard fork results in two blockchains, whereas a soft fork results in one.

Given the security differences between hard and soft forks, almost all users and developers advocate for a hard fork, even when a soft fork appears to be adequate. Overhauling the blocks in a blockchain requires a massive amount of computing power, but the privacy gained from a hard fork is preferable to a soft fork.

CHAPTER EIGHT

ETHEREUM HARD FORKS

Ethereum (ETH) has one of the most active blockchain communities globally, as evidenced by the way it is constantly improved.

The most notable Ethereum hard forks
Since Ethereum's inception in mid-2015, there have been a few notable hard forks:

1. **Ethereum Classic (ETC)**

Ethereum Classic was the first fork that Ethereum experienced. It also happens to be one of the most contentious.

Vulnerability was discovered in the DAO (decentralized autonomous organization) contract in mid-2016. This resulted in the fund losing approximately 3.6 million ETH. Because of how the contract was written, these funds were held for 28 days before being transferred.

In this case, the hard fork occurred so that the development team could respond quickly to the hack and recover the money. EIP 779 was then created, allowing everyone to withdraw their ETH from the DAO contract. If nothing had been done, someone would have owned 4.4 percent of the total ETH supply at the time.

In turn, the proposal divided the Ethereum community into two camps. The first camp was made up of people who were relieved that the development team took action. This meant that the developers had learned their lesson and would be better prepared if something like this happened again.

Those who disagreed with the Ethereum fork argued that the network's updates jeopardized its decentralization. These individuals believed that the development team would simply have to go with the flow for a cryptocurrency to be truly decentralized. They thought that as soon as they

began acting, it would set off a chain of events that would jeopardize the cryptocurrency's future.

Eventually, the developers decided to proceed with the hard fork, and the old blockchain was renamed Ethereum Classic.

2. Ether Zero (ETZ)

Ether Zero, while not as contentious as ETC, is another well-known hard fork.

According to their website, the project was founded by a group of tech enthusiasts who wanted to provide a better platform for developing decentralized applications (dApps) and deploying smart contracts.

What distinguishes ETZ from other forks is that the development team was determined to make transactions completely free in addition to aiming to increase transaction rates.

3. Metropolis

Ethereum Metropolis is the current fork, and it, like ETZ, intends to build on the foundation that ETH has already laid.

To summarize, Metropolis is divided into three stages: Byzantium (which has already been completed), Constantinople (the current phase), and Serenity (more on this later).
Constantinople primarily seeks to improve on two key features:

The first is a change in privacy policies. Don't get us wrong: Ethereum's current privacy settings and options aren't bad at all. Nonetheless, these new features will be significant enhancements to them. It will provide greater privacy when conducting transactions.

The transition from a Proof of Work (PoW) system to a Proof of Stake (PoS) system is the second major feature. Although it is not intended to be completed during this phase, Byzantium and Constantinople are regarded as

the two main preparation phases for this massive next step.

A switch to the PoS system would eliminate the mining process, replacing it with a system that would allow you to stake some of your ETH coins in exchange for the ability to verify network transactions.

4. Serenity/Ethereum 2.0

Ethereum Serenity, also known as Ethereum 2.0, is the final significant step in the cryptocurrency's development. It has one and only one goal: to complete the transition from the PoW system to the PoS system.

Serenity is a significant milestone because it will alter the entire Ethereum landscape. According to their roadmap, "pure PoS" should be available on Ethereum by 2021.

The Serenity Horizon

There is no doubt that all Ethereum hard forks have played significant roles in shaping ETH into what it is today. With the following updates bringing in a gleaming new PoS system, Ethereum's future appears to be bright. However, we have no idea what this means for the cryptocurrency industry as a whole.

There is no telling what will happen to the economy once Ethereum 2.0 is implemented. As PoS renders mining equipment obsolete, there may be a massive dump. It will most likely take some time for people to adjust to the new changes. People will most likely be looking for loopholes, such as selling their mining rigs, launching new cryptocurrencies, or even abandoning Ethereum entirely.

That last one may appear bleak, but it is precisely for this reason that Ethereum's development teams have been working long and hard to prepare for this significant transition. What happens when that update goes live is up in the air, and only time will tell how well it is received—but we can't wait to find out.

CHAPTER NINE

WHAT ABOUT NFTS?

NFTs are changing the worlds of gaming, art, and collectibles by changing how we handle unique assets in digital form.

You will learn everything you need to know to begin collecting, minting and selling NFTs in this beginner's guide.

What exactly is an NFT?
An NFT is a digital token that uses blockchain technology to validate the authenticity and ownership of a unique asset.

NFT stands for non-fungible token, which means they are one-of-a-kind and cannot be exchanged for another asset.

Non-unique assets are referred to as fungible assets. Currencies are fungible because, for example, one US dollar is equal to another. Paintings, on the other hand, are non-fungible because no two are alike.

Even though NFTs have been around for a while, their growth is expected to skyrocket in 2021.

When it comes to artwork, in-game assets, sports cards, and other assets that are valuable to specific groups of people, NFTs enable the authenticity of the product and history-of-ownership to be verified in situations where fraud would otherwise be possible.

This verification is helpful for assets that have multiple owners for their lifecycle. After all, if you're going to buy an ultra-rare trading card, you'd want it to be authentic.

Gaming fandoms and card collectors, for example, place a high value on their assets. NFTs allow communities to express what they value by owning the assets in a verifiable way, which is why communities are spending millions

on NFTs representing their prized goods.

The arts are no exception. NFTs are a haven for artists everywhere because they are an industry brimming with one-of-a-kind assets.

Where and how can I purchase NFTs?
Depending on the situation, NFTs can be found in a variety of locations. NFTs for gaming can be found in-game, whereas NFTs for artwork can be found, for example, at art auctions.

The most popular NFTs, on the other hand, can be found for sale or auction on online NFT marketplaces.

NFT Exchanges:

- OpenSea
- AirNFTs
- Rarible
- And many others...

In a nutshell, to purchase an NFT, connect your crypto wallet, such as Trust Wallet, and then buy the NFT you desire (while paying using cryptocurrency for the transaction fees and the item itself).

What Are Some Common NFTs?

- **CryptoKitties**

Ethereum release date: November 2017.

Each kitty represented by an NFT has one-of-a-kind genes that can be used to breed even more distinct kitties. These kitties can be purchased and sold to add to your collection.

Most Expensive: The most expensive CryptoKitty, dubbed 'Dragon,' is currently available for 600 ETH.

CryptoKitties drew everyone's attention to the importance of NFTs. It congested 10% of the entire Ethereum network at its peak.

These kitties provided much-needed motivation to investigate other applications for NFTs. CryptoKitties, which debuted in 2017, was not the first high-valued NFTs.

- **CryptoPunks**

Ethereum release date: June 2017.

The idea is to have a collection of 10,000 unique characters known as 'punks' that vary in rarity and thus perceived value. An NFT is assigned to each punk.

Most Expensive: Several punks appear on the list of the most expensive NFTs ever sold, with two selling for 4200 ETH.

These 10,000 punks were created to demonstrate the potential of the ERC-721 NFT standard. They are all outfitted with various common or uncommon features or both, allowing for variation in their perceived value.

Because only the original 10,000 CryptoPunks will ever exist, these NFTs are still extremely valuable.

- **Battle Pets**

Binance Smart Chain will be released in October 2020.

The idea is to purchase and then hatch an egg, represented by an NFT, to obtain a pet capable of fighting in-game modes. Win matches to level up and increase the value of your pet.

Most Expensive: A pet kitty is for sale on the BakerySwap NFT Market for 300,000 Bake. However, some pets have more power and are therefore more

valuable.

Battle Pets is seamless gamification of yield farming concepts for those who are familiar with yield farming. Some game modes require you to stake your pet NFTs in specific positions to mine the game's currencies.

- **Gods Unchained**

Release date: November 2019 on Ethereum

In matches and tournaments, you win cards by outplaying your opponents' cards. Cards have varying rarities and thus differing values.

Most Expensive: Hyperion, the most expensive card, sold for 137.8 ETH.

Gods Unchained, which involves strategic card play, can be a good source of pocket money for a skilled player.

Thanks to the rich lore behind the cards and their characters, the game is easy to get lost in.

NFTs In Sports

Collectibles have always piqued the interest of the sports world. NFTs can represent anything on the blockchain, including sports cards, video game assets, and a famous player's jersey.

The following is a non-exhaustive list of NFTs that have made their way into the sports world:

- The NBA -NBA Top Shot.
- Football - Sorare
- Formula 1 - F1 Delta Time
- American Football - Rob Gronkowski’s Championship Series NFTs

- Baseball - MLB Champions NFTs

Virtual Universe
Some people aren't frightened to start a new life in a digital universe as the globe grows more digital. Many games exist as digital replicas of the actual world to meet these demands.

As the popularity of these simulations grows, so does the value players place on their assets in these worlds. What better method to own those in-game assets than through NFTs?

A partial list of Virtual Worlds that use NFTs:

- Axie Infinity
- DecentraLand
- Somnium Space

These platforms can have monthly trade volumes of millions of dollars for their in-game assets thanks to the assistance of NFTs. Users can employ these NFTs in various ways inside the open-world gameplay that many of these worlds provide.

How Can I Create My Own NFT?
To construct an NFT, you must first select a blockchain network that meets your requirements. Different blockchains are created for specific reasons, so choose the one that is best suited to your needs.

Ethereum is the network that popularized NFTs in their current form. Binance Smart Chain, on the other hand, has reduced fees and better speeds.

Minting an NFT involves:

- A blockchain wallet, such as Trust Wallet

- A tiny amount of cryptocurrency to cover minting transaction fees.
- Possession of the digital asset for which you are minting

NFT Market Information
The NFT market includes a wide range of assets, both digital and physical.

"The entire amount spent on NFTs increased from $95 million in Q4 2020 to around $2.5 billion in Q1 2021."

These data are from a nonfungible.com report and do not include NFTs traded on traditional marketplaces.

The top 30-day NFT marketplaces have monthly volumes in the millions of dollars.

NFTs and celebrities
Celebrities have taken notice of the emergence of NFTs. Among the notable celebrities who have released NFTs are:

- Snoop Dogg and his album "A Journey With The Dogg."
- Tony Hawk with a video of his last 540 Ollie as an NFT.
- Lindsay Lohan has a few NFTs, including one of her songs, 'Lullaby.'
- Damien Hirst, an artist, unveiled 'The Currency Project,' which comprises thousands of NFTs for anticipated future paintings.
- To commemorate his career, NFL star Rob Gronkowski auctioned a collection of NFT cards.

- UFC fighter Francis Ngannou made more money through NFTs after his bout against Stipe Miocic than he did from the fight itself.

- DJ Aphex Twin sold a “afx/weirdcore/blockscanner” NFT for $128,000.

- Grimes, Elon Musk's girlfriend, sold a collection of NFTs for a total of $6,000,000.

- Soulja Boy has also contributed to the boom by releasing a collection of 20 NFTs titled "crank that."

Why are celebrities interested in NFTs?
NFTs can be used as ownership certificates for one-of-a-kind assets having psychological worth.

Given the adoration that people have for celebrities, it's easy to see why digital products provided by them are valued.

It's a snowball effect as more celebs see the ease of success in the NFT realm and seize this new earning opportunity.

NBA's Best Shot
As a distinct marketplace, NBA Top Shot is presently the largest NFT marketplace, with sales volume exceeding $500M since its debut.

NBA Top Shot, like trading cards, sells'moments.' A moment is a digital collectible that consists of a video of a specific basketball highlight that you may possess as an NFT.

Each moment includes:

- Video showing the highlights

- The player's and team's artwork
- Stats for the game and the players
- The highlight summary
- A distinct serial number

The fame linked with the highlight influences the worth of the occasion. Some moments are common, while others are limited edition and hence more valuable.

"Numerous moments have sold for thousands of dollars, with the most costly selling for a record-breaking $208,000. Some players collect in order to connect with NBA superstars, while others collect in order to sell and make fortunes."

CHAPTER TEN

DEFI

Finance has come a long way, and understanding this brief history will help us better understand why we like the idea of incorporating the concept of "Decentralized" into "Finance" in as many places as possible.

Finance had no place at the beginning of human history. Hunting for food and finding shelter summed up human needs. Humans needed to interact with one another as their population grew.

Trading was a significant component of this interaction.

The direct exchange of one good for another was the most basic form of trading. You had more meat than you needed, so you had to trade it with a neighbor for something like wheat.

But, in what proportion should this exchange occur? Is it 1:1, 2:1, or something else?

There was no definite criterion for determining the worth of goods.

Another issue with this trading method was that you might not be able to find someone willing to exchange his product for yours, or it might take a long time to waste your goods.

As the number of goods and products increased, so did the need for a criterion and index for valuing goods. This resulted in the invention of money systems and the birth of the first generations of finance. Around 600 B.C., the first money in the form of coins, made of electrum (a gold and silver alloy), appeared.

A novel method of trading
People could now easily exchange goods for cash and vice versa.

Different types of money and assets became popular with the advent of industry. With the introduction of banks and third-party organizations to coordinate human economic behavior, a new generation of finance emerged.

But wait a minute!

Were all of the issues resolved?

Who was in charge of the money? Governments or people?

Was the money distributed fairly and equitably?

Is all of the money spent on the people's welfare and resolving their problems?

Is it possible to keep money transactions secure in the presence of intermediaries?

As you might expect, when money is under the control of a single entity (such as the government), we run into a significant issue:

Unrestricted Money Printing

Through the establishment of central banks, governments assumed the right to print money and established themselves as intermediaries between two trade parties.

As you may be aware, printing more money raises the price of goods and does not affect the quantity or quality of goods. Even if your wages rise, you will not be better off if everything becomes more expensive.

On the other hand, rare assets such as gold, rare art, and, these days, Bitcoin are becoming more valuable.

Easy monetary policy and high inflation are two major causes of currency depreciation.

There is no need to single out a specific organization or group; however, the world has recently experienced severe financial crises due to the central banks and intermediaries who continue to control money's negligence or maladministration. Many factories and companies went bankrupt, and many people were fired or lost their jobs as a result.

People have lost faith in traditional financial systems as a result of financial crises. People are becoming more aware of the advantages of an unmediated financial system.

One of the first steps toward achieving this goal was the creation of Bitcoin.

Finance has entered a new era with the introduction of Bitcoin and cryptocurrencies. Although there have been some significant changes, it is still impossible to call it a decentralized financial system. The majority of cryptocurrency financial transactions and services are conducted through centralized exchanges.

What is the distinction between a bank and a centralized cryptocurrency exchange?
To some extent, not much; when an intermediary organization plays a significant role in a decentralized finance system, decentralization quickly loses meaning.

Let's pretend we have a completely decentralized financial system (DeFi). Could this system meet all of our requirements?

DeFi is a rapidly expanding sector of the cryptocurrency industry, with thousands of projects running on various blockchains. Most traditional financial services can be provided via DeFi, but without the involvement of a third party such as banks or other non-banking financial institutions. The most noticeable feature of DeFi is the elimination of intermediaries.

This, my friend, is the next generation of financial services.

Many people believe that DeFi is the future of finance and that investing in it

could yield significant returns. But are these investments without risk?

Because it can be difficult for newcomers to distinguish between the good and bad aspects of DeFi, it would be beneficial to discuss the pros and cons of DeFi.

Where DeFi really shines
As previously stated, most traditional financial services may be catered for within the DeFi space:

1. Decentralized exchanges (DEX)
Smart contract-based online trading services DEXes allow users to exchange tokens and trade without the use of intermediaries.

2. Automated Market Maker (AMM)
AMMs are similar to DEXes, but there is a significant difference. DEX platforms use order books (which contain P2P orders) to price assets. In contrast, AMM platforms use a unique mathematical formula to price assets, and liquidity is provided by liquidity providers, who typically earn tokens as a reward, rather than necessitating individuals to be on both sides of each trade.

3. Loaning
Many people find the crypto loan business to be an appealing option. Borrowers gain access to capital while lenders receive interest payments. Borrowers who use DeFi can use their funds as collateral and borrow without a credit score.

4. Staking out
Some blockchains, such as Bitcoin, are based on proof-of-work (PoW), while others are based on proof-of-stake (PoS) (PoS). Staking is a type of activity in which you are rewarded for locking your assets in a PoS network in exchange for providing security and confirming blockchain network transactions.

5. Non-Fungible Token (NFT)
NFTs are a new phenomenon in the crypto space with numerous applications

such as identification, arts (digital ownership), gaming, collectibles, sports, media and entertainment, real estate, and so on.

6. No-Loss Games and Lotteries

Games and lotteries are another appealing services in the DeFi space. 'No-loss' lotteries appear to be risk-free. Participants in this type of lottery get their money back, and one lucky participant wins all of the profit that has accrued in the shared pot. All of this is done without intermediaries, simply by using smart contracts in the DeFi space.

Where does DeFi have a competitive advantage?

1. Goodbye to human error and poor management.

As previously stated, financial crises occur due to mismanagement by central banks (C.B.s) and third-party intermediaries (TPIs). However, thanks to smart contracts, human error is removed from the process daily; unless the contracts themselves were poorly drafted.

2. Constant and immediate access

Before DeFi, if you needed a loan, you had to go to a bank and waste a lot of time. You may receive a loan with DeFi with only one click, even in the middle of the night. As long as you have an internet connection, you can access the market from anywhere and anytime.

3. A More Healthful System

Covid-19 has demonstrated the vulnerability of traditional financial systems (CeFi) to global shocks. It is because centralized financial systems rely on direct communication between individuals.

COVID-19 has created a three-fold economic shock compared to the 2008 financial crisis, according to economist Nariman Behravesh.

The amount of physical touch required to maintain decentralized financial systems (DeFi) might be reduced to zero, and bitcoin values and firms have been rising amid the current health crisis.

4. Permissionless Operations

In the traditional financial system, practically any financial operation requires permission from an intermediary.

You must wait for bank approval to take a penny from your account, whereas DeFi customers can engage with financial services without permission.

In the DeFi space, a vast range of services may be anticipated, and not all of them could be mentioned in this talk. More DeFi terminology can be found in this other DApp Journey DeFi post.

Are all of these services and platforms without risk?
Without a doubt, the answer is "No." A DeFi product, like an apple that may contain a worm, has its own set of issues and risks.

What are the problems that DeFi projects face?
Most issues and hazards a DeFi project faces are tied to the technology that it is built on: blockchains. Because over 90% of DeFi projects are based on the Ethereum blockchain, we shall consider the Ethereum challenges to be DeFi challenges:

1. Unpredictability
If the blockchain that hosts a DeFi project is unstable, the project will spontaneously inherit the host blockchain's instability. The Ethereum blockchain is continually evolving; for example, faults made when transitioning from PoW to the new Eth 2.0 PoS scheme may pose additional hazards to DeFi projects.

2. Extensibility
Another major challenge with DeFi projects is the host blockchain's scalability.

The scalability issue causes two primary issues:

a) Transactions take a long time to confirm; b) Transactions are costly during times of congestion.

Ethereum can execute approximately 13 transactions per second at total capacity, whereas centralized competitors can process thousands upon thousands of transactions.

3. Smart Contract Issues
The fragility of smart contracts is a significant source of problems for many DeFi implementations. The slightest error in a smart contract's programming can result in a loss of cash.

4. Lack of Liquidity
One of the most crucial elements for DeFi token-based projects and blockchain systems is liquidity. By October 2020, the total value locked in DeFi will be more than $12.5 billion. When compared to established financial systems, this is a drop in the bucket.

5. Excessive collateralization
As previously said, the crypto lending industry is an appealing offering in DeFi. This firm, however, suffers from over-collateralization, which arises when the value of the staked asset (by the borrower) is unreasonably high in comparison to the loan amount itself. To compensate for the absence of hurdles such as credit ratings, DeFi projects have substantial collateralization.

6. There is a lack of interoperability.
There are other blockchains, including Bitcoin, Ethereum, and Binance Smart Chain, each having its DeFi ecosystem and community. Interoperability allows DeFi platforms, tools, DApps, and smart contracts running on multiple blockchains to communicate with one another. Many projects are isolated until this gets simpler.

7. Inadequate Insurance
Investors are protected by insurance in the case of a hack or other fraudulent activity. Insurance is quite crucial in centralized finance, but it is considerably less common in DeFi.

8. Consolidation
The primary goal of establishing bitcoin and blockchain is to create a decentralized finance, yet decentralized finance isn't always as decentralized as it should be. Scams are considerably reduced by decentralization.

DeFi worked on the project "Sushiswap." Sushiswap's unknown founder has

pulled the plug on the project, turning all of his Sushi tokens to ETH on September 5, 2020. After the SUSHI token branched from the Uniswap protocol, its value increased to $10 before dropping to 0.6$ (when writing this article) after the founder converted his tokens. This is an illustration of how, even within DeFi, a single point of failure is feasible.

9. It is your responsibility

Even if DeFi is risk-free and error-free, it is not liable for your errors. DeFi shifts responsibility away from intermediaries and toward users. If you lose your assets by mistake, no one will hold you accountable; thus, developing solutions to prevent human errors and blunders is critical in the DeFi area. With independence comes a lot of responsibility. Many users aren't used to looking after themselves in this way, which can result in them losing money or being defrauded.

DeFi is a new and experimental technology with some concerns and problems, particularly in terms of security. Developers and supporters of decentralized finance expect that these issues will be resolved in the future.

CONCLUSION

There you have it. Just as I promised initially, I have provided you with all the required information you need to understand the Ethereum cryptocurrency. Now, you can go on ahead and begin exploring the attractive opportunities available in the Ethereum blockchain.

I do hope that you succeed in your cryptocurrency journey. There's so much benefit waiting for you. Let nothing hold you back.

Cheers.